

Annual Report Fiscal Year 2005



Annual Report of the Arkansas Forestry Commission Fiscal Year 2005

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Arkansas Forestry Commission

Mission Statement

In cooperation with the University of Arkansas system, the U. S. Department of Agriculture, and Arkansas landowners, the Arkansas Forestry Commission will protect and develop the forest resources of Arkansas by preventing and suppressing wildfires, monitoring and promoting forest health, encouraging reforestation and forest resource stewardship, and gathering and disseminating forest resource information.

Administration

The Administration Section of the Arkansas Forestry Commission (AFC) provides support services for the day-to-day operation of the agency. These services include Personnel Management, Fiscal Management, Poison Springs State Forest, and Conservation Education.

Personnel Management

The Personnel Department is responsible for employment procedures, recruitment, employee benefits, time data entry, payroll processing, workers compensation claims, training, and safety. The staff of the Personnel Department assists AFC employees with a myriad of day-to-day assistance to facilitate a productive work environment.

The Arkansas General Assembly authorized 329 regular positions for FY-05. The AFC averaged 309 filled positions during the fiscal year.

Safety is a topic on every staff meeting agenda in addition to routine tailgate sessions and local AFC unit meetings. Inspection of Personal Protective Equipment (PPE) worn by AFC firefighters is done in conjunction the Protection Department equipment inspections. The AFC works with the Arkansas Department of Labor to assure that all buildings and contents meet safety requirements.

Training

AFC Ranger Training was held at the Ferncliff Camp and Conference Center in late September and early October 2004. From May 23 - June 3, 2005 the first Arkansas Interagency Wildland Fire Training Academy was held in Russellville on the campus of Arkansas Tech University. During the "Arkansas River Valley Wildfire Academy", more than 290 individuals received training in the 22 separate National Wildfire Coordinating Group (NWCG) Courses. Some individuals were able to complete several courses while attending the two-week Academy. Over 2,600 man-days of training occurred, representing over 10,000 hours of training. Personnel from the U.S. Forest Service, National Park Service, Bureau of Indian Affairs, Iowa Tribe, Choctaw Tribe, U.S. Fish and Wildlife Service, U.S. Army Corp of Engineers, The Nature Conservancy, Arkansas State Parks, Siloam Springs Fire Department, Arkansas Department of Emergency Management, Fort Chaffee and Camp Robinson Military Bases, National Forests of Puerto Rico, Oklahoma Division of Forestry and Arkansas Fire Management Consultants attended the training along with AFC personnel. The AFC was one of the co-hosts of this first academy and will also co-host the second annual Arkansas Interagency Wildland Fire Training Academy May 15-26, 2006.

AFC Ranger Training is scheduled for October 2005 at the Ferncliff Camp and Conference Center and will include training for the three Forest Ranger classifications and Foresters . All Terrain Vehicle (ATV) rider safety training for new employees will be held at the AFC office in Malvern.

In 2005 the AFC issued NWCG fire qualification cards to 86 employees and cooperators. This number is down from 2004 and will probably decline more in the next couple of years since the

AFC is no longer expanding into agency cooperators. Fire assignments filled by AFC personnel and cooperators during 2005 included: Radio Operators, Resource Unit Leader, Staging Area Manager, Base Camp Manager, Strike Team Leader, Crew Boss, Dozer Boss, Helicopter Crewmember, Helicopter Manager, Chainsaw Operator, Safety Officer, Emergency Medical Technician, and Medical Unit Leader.

Table 1: Training Courses Conducted in FY-05

ATV Rider Safety Training	First Aide/Adult CPR
First Aide/Adult CPR	Incident Qualifications Systems Training
S-190, S-130, I-100, L-180, S-110	S190, S-130
Arkansas Prescribed Burn School	Defensive Driving
FR-217 GPS Field Mapping	FR101
FR-206 Insect and Disease Problems	Work Capacity Pack Test
FR-213 Tree Identification	S-271 Helicopter Training
FR-212 Basic Surveying	S-404 Safety Officer
FR-205 Basic Forest Management	Fireline Refresher Training
S-212 Wildfire Power Saws	RX310 Introduction to Fire Effects
I-200 Introduction to ICS	First Aide/Adult CPR
ATV Rider Safety Training	Wildland Fire Academy

Poison Spring State Forest

Forest Management

Poison Springs State Forest (PSSF) is a demonstration forest located in western Ouachita and eastern Nevada counties. PSSF provides the AFC with yearly revenue while demonstrating different forest management techniques to private non-industrial landowners.

When the AFC purchased PSSF in 1957, the 19,942-acre forest had 20,240,000 board feet of pine and 10,303,000 board feet of hardwood. The AFC has cut timber every year since 1957. Today PSSF is 17,500 acres and has over 80 million board feet of pine and about 9.5 million board feet of hardwood.

The AFC used timber sale proceeds to make annual payments to the U.S. Forest Service until the land was paid for. Today timber sale proceeds pay operations and salary expenses and provide the AFC revenue for general operations. The AFC has never used any general revenue to pay for or operate PSSF. The AFC places timber sale proceeds in excess of expenses and operations into a trust fund for capitol equipment purchases.

Table 2: Timber Harvested from Poison Springs State Forest in FY-05

Product	Volume	Value
Pine Sawtimber	2,736,000 bf	\$1,291,557
Hardwood Sawtimber	109,000 bf	21,800
Misc. and Salvage		84,743
Non-timber income		936
Total	2,845,000	\$1,399,037

FY-05 pine stumpage prices on PSSF were higher than the past five-year average. Conditions were wetter so there was a premium for wet-weather logging availability. There were six bid sales. Timber sold in FY-05 amounted to \$1,398,101.

Public Use

Arkansans use PSSF for camping, hunting, hiking, horseback riding, and sight seeing. The AFC requires a permit for camping on PSSF. Most permits are issued for the October and November deer seasons. More than 2,000 hunters and recreationists made reservations for PSSF's primitive campsites during the year.

Fiscal Management

The Fiscal Office is responsible for accounting, building maintenance, funds management, inventory, and purchasing.

The AFC receives funding from two special revenue sources: Timber Severance tax and the Fire Protection tax. Revenue from these two taxes accounted for almost one-half of the AFC's receipts. The primary wood processor pays the Timber Severance tax on a weight basis. Net Timber Severance tax receipts to the AFC in FY-05 were \$3,931,309.

Owners of forested land pay the Fire Protection tax at the same time they pay their Real Estate tax to county government. In FY-05 Fire Protection tax receipts amounted to \$2,144,086.

Conservation Education

The Conservation Education office supports other AFC programs by developing written materials for AFC personnel to use in promoting forestry and fire prevention, developing educational material for use in Arkansas schools, and providing other assistance as needed.

During FY-05 the Conservation Education office placed emphasis on environmental education for schools, and on landowner education. AFC foresters assisted the Arkansas Forestry Association (AFA) in conducting a series of landowner workshops.

The AFC worked with AFA and other agencies to present a week-long teacher conservation workshop at the University of Arkansas-Monticello. Participating teachers study all aspects of the environment and are able to earn three graduate credits.

Table 3: AFC Revenue for FY-05

Revenue Sources	Amount
General Revenue	\$5,644,742
Severance Tax	3,391,309
Fire Protection Tax	2,144,086
Federal Reimbursement	3,659,890
State Forest	1,422,765
Nursery	1,231,375
M&R	61,727
Misc. & Beginning Fund Balance	1,036,655
<u>Reclaim Year End Balance</u>	<u>1,252</u>
Total	\$19,124,801

Table 4: AFC Expenditures for FY-05

Operating Expenditures	Amount
Personnel & Salary Benefits	11,864,601
Maintenance & Operation	3,538,547
Grants	1,027,968
Overtime	57,44
Travel	577,12
Professional Contracts	383,283
Capitol	726,367
Data Processing	20
Improvement Tax	16,046
<u>Uniform Allowance</u>	<u>50,260</u>
Total	17,810,393

Table 5: FY-05 Conservation Education Activities

School Programs Presented	20`6
Newspaper Articles Written	498
Radio Programs Presented	79
Television Programs Presented	23
Exhibits and Fairs	314

Forest Resource Protection

The AFC is responsible for the protection of 18,790,000 acres of non-federal forestland in Arkansas. The Forest Resource Protection division manages five program service areas to provide resource protection to the forested and rural areas of the State. These are: Fire Protection, Aviation, Communications, Law Enforcement and Rural Fire Protection.

Fire Protection

AFC Foresters and Rangers are involved daily in one or more of the four key activities of fire protection: prevention, pre-suppression, detection, and suppression.

The AFC has 98 firefighting units made up of a bulldozer and transport truck. These bulldozers are used to cut a firebreak to stop an on going fire. During FY-05 the AFC was able to purchase two new transport trucks, one new JD-550 bulldozer which was equipped with an environmental cab for added operator protection.

The AFC has experienced a substantial loss of forest industry wildland fire suppression crews. In early 2000 there were approximately 70 frontline forest industry fire suppression crews available to respond to wildland fires. Currently there are 23 second-line crews, these are industry contractors or industry owned equipment that are used in other forest management work. This is a tremendous loss of fire suppression resource in Arkansas.

Improvement in fire protection is often hard to measure considering the many variables that influence yearly fire occurrence and fire behavior. The standard measurement of fire protection is the number of fires suppressed and acres burned. The 1,356 fires suppressed by AFC firefighters during calendar year 2004 was below the five-year average of 1,885 fires. The total acres burned in 2004 was 22,145 this was also below the five-year average of 22,337 acres. The average size fire for 2004 was 16.3 acres; up from the 2003 average of 14.3 acres per fire.

In 2004 debris burning was Arkansas' leading cause of wildfires.

Table 5: Comparison of 2004 fires with the past 5 years:

Year	Number of Fires	Area Burned (Acres)	Average Size (Acres)	% of Protected Acres
1999	2,525	24,659	9.8	0.12
2000	2,705	34,717	12.8	0.17
2001	1,374	14,681	10.7	0.07
2002	1,199	14,351	11.9	0.07
2003	1,620	23,279	14.3	0.12
5yr avg	1,885	22,337	11.85	
2004	1,356	22,145	16.33	

Table 6. Fires by Cause

Cause	Number of Fires	Number of Acres
Incendiary	492	12,066
Debris Burning	555	6,897
Smokers	14	139
Railroad	23	63
Campfire	10	147
Equipment Use	97	584
Children	14	96
Lightning	10	895
Miscellaneous	141	1,258
Total	1,356	22,145

However, almost twice as many acres burned as a result of arson fires. Debris fires accounted for 40.9 percent of Arkansas' wildfires and arson accounted for 36.3 percent. Arson fires burned 54.5 percent of the total acres and debris burning fires burned 31.1 percent of the total acres.

Fire Lane Construction

Firelane construction is a pre-suppression service provided to landowners for a fee. Upon receiving an application from a landowner, the AFC will build or maintain fire lanes for \$60.00 per hour. This is the total charge for a tractor-plow, two men and transportation. During FY-05 the AFC constructed 244 miles of firelane and completed 51 miles of firelane maintenance.

Aviation

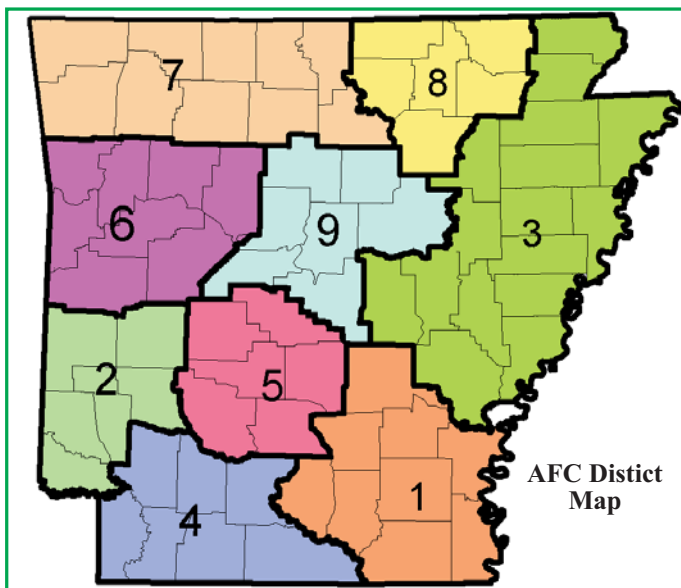
The Aviation Section supports the nine AFC districts through aerial fire detection, timber damage surveys, insect and disease surveys, and cooperates with other state and federal agencies. The Aviation department operates 15 aircraft statewide and employs six full-time pilots and 20 extra-help pilots which are used for detection flights during periods of high fire danger. All AFC pilots hold at least a commercial certificate with an instrument rating.

The AFC fleet of aircraft consists of six state owned and nine federally owned fixed wing aircraft. Two Aero Commander twin-engine aircraft are utilized for air attack aircraft in support of fire suppression operations and the air tanker program. Thirteen single-engine aircraft are utilized for fire detection, surveys and other forestry related needs. All AFC aircraft are maintained to FAA standards. Avionics are upgraded as technology advances. Logbooks, maintenance records, and the general condition and appearance of all aircraft are thoroughly and routinely examined to maintain a high standard of safety. During FY-05 AFC aircraft flew 3,053 hours detecting fires, insects, and for other forestry related purposes.

Communications

To dispatch fire crews AFC operates 46 communications towers and 12 base stations. A project to convert from wideband to narrowband is underway. In FY-04 the AFC converted District 6 to narrowband. In FY-05 the AFC completed the entire narrowband infrastructure for Districts 1, 2 and 9 and is ready to convert. The AFC installed Technisonic air to ground FM communications equipment in ten airplanes.

The AFC dispatch center provides a twenty-four hour a day point of contact for the public, AFC firefighters, volunteer fire fighter operations and federal agencies. Two statewide



telephone WATTS lines are in place for reporting wildfires and prescribed burns. The dispatch center provides full time dispatching for AFC Districts 4, 5, and 6. At night, on weekends and holidays, the center dispatches all districts. A new Computer-Aided Dispatch (CAD) system is in full operation. This system provides better coordination of firefighting efforts through increased understanding of land ownership, best use of resources, and faster translation of latitude and longitude to legal descriptions. New forest fire reporting software is being developed to allow trending and other advanced techniques. Fire weather forecasting is done at the dispatch center to give fire suppression and prescribe burning personnel the latest weather information to manage a prescribed burn or wildfire.

Rural Fire Protection

The Rural Fire Protection Program of the AFC continues to grow in popularity with fire departments in Arkansas. The Rural Fire Protection Program provided services to every county in the state this past year and requests for assistance continue to exceed supply of equipment. Most measurable accomplishments increased over the past twelve months.

During FY-05 the Rural Fire Program accomplished the following:

- Retrofitted 51 vehicles. These are Federal Excess vehicles that are painted and equipped to fight fires. The work is done in the AFC shop at Greenbrier and consists of installing tanks, pumps, parts, etc.
- Financed 25 municipal type fire trucks.
- Loaned 37 communities \$454,290.70 to purchase firefighting apparatus and equipment.
- On June 30, 2005 the amount of money owed the AFC on two and three-year interest free loans was \$636,623.35.
- Sold equipment to volunteer fire departments worth \$210,529.89.
- Acquired 106 vehicles through the Federal Excess Personal Property Program.
- Placed 82 vehicles in communities who will use the vehicles to build their own fire trucks.
- Fabricated and placed ten, 2,000 gallon tankers in communities for use as a fire suppression water supply.
- Installed and financed one compressed air foam system on a vehicle for use on brush fires.
- Presented 47, four-hour Wildland Fire Suppression classes to 367 fire departments. Seventy-five fire departments were minorities.
- Certified 982 students in the four-hour Wildland Fire Suppression course.
- Presented 29, eight-hour Wildland Fire Suppression classes to 220 fire departments. Twenty-seven minority fire departments were represented.
- Certified 750 students in the eight-hour Wildland Fire Suppression course.
- Presented 27 ICS/I-100 classes to 200 departments including 27 minorities.
- Certified 624 students in the Incident Command System (ICS) I-100 course.
- Disposed of 104 federal excess vehicles through GSA sales and donations to the state agency for Federal Excess Property.
- Helped organize eleven new fire departments.
- Received 1,919 requests for assistance.
- Presented 26 programs about the Rural Fire Protection Program.

Law Enforcement

Unlawful dumping, timber theft, woods arson, and equipment theft and vandalism have long been problems for Arkansas' forest landowners and loggers. The AFC has aggressively sought prosecution of violators to deter such crimes. Arkansas Code Annotated 20-22-301 gives the AFC the authority to enforce the State's laws pertaining to unlawful dumping, timber theft, forest fires, and logging equipment theft and vandalism.

AFC Rangers with law enforcement responsibility are required to take 16 hours of law enforcement training each year. District law enforcement officers and the full time investigators are required to attend 40 hours of training each year. The AFC has four full-time Forest Investigators and thirteen District Law Enforcement Officers. The District Law Enforcement Officers are Rangers and Foresters that must handle their regular duties and do law enforcement as an additional duty. In FY-05 the caseload for dumping, timber theft, fire, and equipment vandalism was 394 cases.

Forest Resource Management

The AFC works with private nonindustrial forest landowners (PNIFLO), forest industry, University, private forest consultants, and other government natural resource agencies to promote forest stewardship and to insure the sustainability of Arkansas forestland.

Issues that concern the sustainability of Arkansas forests are: 1) landowner education, 2) forest fragmentation caused by urbanization and changes in ownership characteristics, and 3) inadequate incentives for reforestation and resource improvement on PNIFLO properties. The AFC is addressing these issues through forest resource management programs.

Urban and Community Forestry

The Urban and Community Forestry Program (U&CF) is designed to provide communities, non-profit organizations and educational institutions the necessary tools, information and technology to promote stewardship of the urban forest. To meet the growing demand for technical assistance, the AFC provides assistance through an urban forestry representative in each of the nine AFC districts. These representatives work closely with communities, schools and various organizations to increase public awareness of the value of urban trees, and to improve standards for tree protection, planning, planting and care.

The U&CF program administers a USDA Forest Service (USFS) grant program for projects and programs that promote sustainable community forestry. Forty-two communities and organizations received grants totaling \$238,300.

Some of the projects receiving grants include:

- The University of Arkansas (Uof A) Fort Smith campus arboretum. The arboretum is shown on a *Tree Guide* and is also located on their website at www.uafortsmith.edu/Arboretum.
- The City of Van Buren public property tree inventory. The inventory will allow the city to schedule work plans and budget for future tree maintenance and planting requirements.
- The City of Warren stream restoration project for the Town Branch which runs throughout the community. The city worked with the U of A Community Design Center to develop the stream restoration project. The design won the American Institute of Architects Honor Award. Students from the U of A Monticello campus surveyed the area to assist in developing specifications.
- Garvin Woodland Gardens Forest Ecosystem Demonstration and Education project. The project is to restore a native lowland forest area demonstrating appropriate forest management practices.

The AFC continues to partner with the non-profit Arkansas Urban Forestry Council (AUFC). The AUFC assists with program delivery and expands outreach at the local level. The Council has more than 100 members statewide and works with communities to promote tree care. The AUFC held their 14th annual conference in Hot Springs which promoted the health benefits of the urban forest.

The communities of Haskell and Sardis utilized the AUFC's Arkansas Releaf program after a tornado damaged or destroyed many of the trees in these two communities. Members of the AUFC, several partners, and students planted trees on the Haskell school grounds and gave away trees to area residents.

During FY-05 the U&CF program:

- Provided 374 technical assists to communities for projects such as tree planting and pruning, organizing a tree or beautification committee, tree management in parks, tree inventories, workshops and Arbor Day ceremonies.
- Provided 269 assists to individuals and organizations for 1783 specific tree requests.
- Presented environmental education classes to more than 7,670 students.
- Certified 23 communities as Tree City USA's.

Forest Legacy

On March 2004 Governor Mike Huckabee petitioned the USFS for the Forest Legacy Program to include the State of Arkansas. The USFS included Arkansas and the AFC is the designated lead agency for the Forest Legacy program. The AFC created and filled a Forest Legacy Coordinator position within the agency.

A prerequisite for a state to be accepted into the program is the development and approval of an Assessment of Need (AON). The AON represents a justification of why Arkansas needs the Forest Legacy Program and designates where it should be implemented in the State. The AON highlights environmentally important forest resources and defines potential threats to those resources. The State Forest Stewardship Coordinating Committee designated a Forest Legacy subcommittee to begin the development of the AON. The document is scheduled to be completed by the end of 2005.

Water Quality Management

The AFC is the designated Management Agency for the Silvicultural (Forestry) Section of the Arkansas Water Quality Plan.

Implementation of voluntary forestry Best Management Practices (BMPs) is the primary means of protecting water quality during forest practices within the state.

Present AFC responsibilities for the Plan involve six major areas of concern: 1) BMP training and education for landowners, loggers, and foresters; 2) Biennial monitoring of BMP implementation on silvicultural sites throughout the state; 3) Resolution of timber harvesting/water quality complaints; 4) Cooperation, coordination, and participation with other state and federal agencies concerning water quality in silviculture; 5) Participation in the Environmental Protection Agencies' nonpoint source pollution 319 Grant program; and 6) Effectiveness Monitoring. The AFC has a full time forester dedicated to the BMP Program.

During FY-05 the following accomplishments were made within the six major areas of BMP job responsibility:

- Conducted two BMP training sessions with Potlatch Corporation.
- Presented BMP training to AFC personnel at the AFC Training Academy.
- Conducted landowner BMP training sessions in Monticello and Nashville.

- Performed courtesy landowner BMP exams on Deltic Timber Company land at Lake Maumelle for Central Arkansas Water, Ouachita National Forest firelines with Larry Hedrick, and in Little River County for the County Forester.
- Participated in six Arkansas Timber Producers Association logger training sessions.
- Completed aerial reconnaissance of AFC's District One for the fifth BMP Survey.
- Responded to fourteen complaints.
- Participated in four Arkansas Department of Environmental Quality Arkansas Watershed Advisory Group (AWAG) meetings.
- Put a BMP display in AWAG's annual meeting.
- Participated in four nonpoint Source "Five Year Plan" meetings with the Arkansas Soil and Water Conservation Commission (ASWCC), EPA, and other cooperators.
- Participated in three meetings with the Arkansas Forestry Association's "Forest Practices Group".
- Hosted the southeastern National Association of State Forester BMP group's biennial meeting at DeGray Lodge in Arkadelphia, AR.
- Participated in the four-state (Arkansas, Texas, Louisiana, and Oklahoma) BMP meeting in Baton Rouge.
- Attended two Bayou Bartholomew watershed meetings in Pine Bluff.
- Participated in technical committee meetings for various watershed groups and events including Bayou Bartholomew, Upper Saline River, Little Red River Conservation Strategy, and L'Anguille River.
- Applied for and received a federal 319 grant to assist funding AFC's Water Quality Program for period October 2005 to October 2008.

Forest Inventory

The Forest Inventory and Analysis (FIA) program in Arkansas collects research data from permanent plots located throughout the state. There are 5,815 plots in the state with each being revisited every five years. The data gathered from these plots provide information about forest growth, damage, mortality, health, and land use trends.

The Arkansas FIA program employs eight Forest Inventory Specialists and one Forest Inventory Coordinator. Normally, three to five hours are needed for an Inventory Specialist and an assistant to complete data collection on any given plot. The Specialists are assisted either by another Specialist, a District Ranger or extra help. A Quality Assurance/Quality Control Forest Service employee checks eight percent of all plots to insure data accuracy. A Specialist must maintain an 87 percent average or above on these checks.

During FY-05, the inventory crews gathered data from 1,482 plots across the state. Of these plots, 616 were regular forest plots, 625 were non-forest plots, 217 were partially forested plots, and 24 were non-sampled plots. The Quality Assurance/Quality Control grading average for the Arkansas FIA program is 94.07 percent.

Plans for the future are to maintain an 87 percent or above grading average and to collect 20 percent of all plots annually, completing the entire state every five years.

Forest Health

The AFC Forest Health Program provides technical assistance to AFC personnel and landowners regarding the prevention, detection, evaluation, and suppression of forest insects and diseases.

In FY-05 the Forest Health program:

- Prepared one newspaper for distribution to the field.
- Provided Forest Health training to 34 field personnel.
- Presented programs to 134 individuals at four civic clubs.
- Participated in the south-wide southern pine beetle (SPB) pheromone trap survey. Trapping results, which predicted a low or stable population, proved to be accurate. The number of SPB spots in FY-05 was two compared to two in FY-04.
- Conducted SPB flights at a reduced level in FY-05 due to low SPB populations. Approximately 2,598,000 acres were surveyed for SPB and approximately 925,000 acres were surveyed for hardwood defoliators.
- Prepared 67 insect or disease evaluations on 929,799 acres.
- Assisted 127 landowners.
- Continued to support the State Plant Board in its effort to detect and eradicate the gypsy moth. Twenty gypsy moth traps were distributed to each district and placed at various locations throughout the district.
- Cooperated in the FY-05 Sudden Oak Death Survey. Sixteen samples were collected from thirty sites. All samples were negative.
- Cooperated with the USFS in the Rapid Detection Survey for Emerald Ash Borer. Seven traps were placed at three hardwood sawmills in the Delta. No Emerald Ash Borers were caught.
- Provided \$444,093 for 121 SPB prevention and restoration projects covering 5,753 acres.
- Funded six Invasive Species projects on 104 acres.

Tree Improvement

The AFC in association with the Western Gulf Forest Tree Improvement Program continues to improve the genetic quality of plant material available for reforestation in the Western Gulf region. The AFC sells pine seedlings produced from seed with the highest possible genetic gain. Only the best clones in AFC's loblolly and short leaf pine orchards are being harvested.

Tree Improvement Accomplishments for FY-05 are divided into three categories:

- Orchard Genetic Advancements – genetic improvements incorporated into production orchards.
- Cone and Seed Collection – production determines volume and genetic gain of pine seedlings grown by AFC's Baucum Nursery.
- Breeding Program Advancement – summary of the different controlled cross pollinations and testing of genetic quality

Orchard Genetic Advancements

Another new second-generation loblolly pine selection was grafted into the second-generation loblolly pine breeding orchard, and duplicated in top-grafts. The AFC now owns 116 second-generation selections.

Root stock has been planted for two new production orchards which will incorporate the AFC's highest genetic gain to date.

Cone and Seed Collection

The AFC harvested 743 bushels of genetically improved loblolly cones, which produced 948.5 pounds of seed, or 1.28 pounds of seed per bushel.

Average genetic gain of the 743 bushels is 25 percent. Therefore the crop that AFC Baucum Nursery will be lifting at the end of 2005 and beginning of 2006 will provide Arkansas landowners with an average genetic gain of 25 percent.

The first harvest of our new genetically improved shortleaf orchard yielded 3.5 bushels of cones and 2 pounds of seed or 0.57 pounds of seed per bushel.

The AFC is working with The USFS to manage additional orchards of cherry bark and nuttall oak. Twenty acres of Cherry Bark Oak and thirteen acres of Nuttall Oak are located in the St. Francis National Forest. A procedure was developed for thinning both the Cherry Bark and Nuttall production areas during this past fiscal year.

Program Advancement

The future of the AFC tree improvement program is its breeding, testing and orchard establishment. The tree improvement staff has aggressively pursued their objectives and during FY-05 accomplished the following:

- Used 204 pollination bags to control pollinate 1,728 flowers. To select the best parents we use a mix of average pollen from Arkansas and Oklahoma to pollinate all second generation flowers for a polymix cross.
- Measured two, ten-year old and one, three-year old loblolly pine tests for volume data.
- Measured one, five-year old nuttall oak test and one, five-year old shortleaf test for volume data.
- Measured three, one-year old loblolly pine tests for survival.
- Measured a total of 15,872 trees from eight tests.

Reforestation

Baucum Nursery sold and distributed 5,218,867 hardwood seedlings and 6,206,100 pine seedlings to Arkansas landowners during FY-05. Forest industry purchased approximately one million pine seedlings. Private non-industrial landowners purchased the remainder of the pine and hardwood seedlings. Most of the pine and hardwood seedlings purchased by private non-industrial landowners were planted under the Forestry Incentives Program, Conservation

Reserve Program, Wetlands Reserve Program, and a few remaining Plant The Delta plans. Revenue collected from the sale of seedlings was more than \$1,238,500.

More than 67,000 pine seedlings and more than 21,567 hardwood seedlings were distributed to schools, city and county governments, churches, and other non-profit organizations for Arbor Day, Earth Day, and other informational and educational purposes.

Baucum Nursery received approval for the construction of a new office and

construction should begin around August 1, 2005. Revenue taken in from the sale of seedlings made construction of a new office possible.

Nursery personnel completed all necessary cultural practices to insure top quality seedling production. Fertilizers were applied as a result of soil tests. Soil fumigation was done and herbicides were applied to prevent and control weeds, diseases, and insects. Approximately one hundred tons of soil amendments plus cover crops on layout fields were used to maintain soil productivity.

Table 7: Species sold in FY-05

<u>Pine</u>	<u>Sold</u>	<u>Hardwood</u>	<u>Sold</u>
Improved Loblolly . . .	5,765,050	Cherrybark Oak	614,700
Improved Shortleaf . . .	441,050	Northern Red Oak	102,523
Total Pine:	6,206,100	Nuttall Red Oak	1,002,900
		Overcup Oak	269,172
		Pin Oak	200,524
		Sawtooth Oak	215,825
		Shumard Oak	296,558
		Cow Oak	169,400
		Water Oak	499,946
		White Oak	86,410
		Willow Oak	530,589
		Bald Cypress	404,850
		Black Walnut.	45,700
		Green Ash	374,450
		Pecan (Native)	298,750
		Persimmon	72,100
		Water Tupelo	34,470
		Total Hardwood:	5,218,867
		Overall Total Sales: . .	11,424,967